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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER	
ANSARI, TAHMINA N	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/586,997	Applicant(s) FUJII ET AL.	
	Examiner TAHMINA ANSARI	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This is in response to the applicant's reply filed November 18, 2009. In the applicant's reply, claims 1-20 were amended, and claims 21-22 were added. Claims 1-22 are pending in this application.

Examiner's Responses to Applicant's Remark

2. Applicants' amendments filed on November 18, 2009 have been fully considered. The amendments overcome the following rejections set forth in the office action mailed on September 18, 2009.

a. Applicant's amendments overcome the rejections of claims 17-20 under 35 U.S.C. 101 for being directed to non-statutory subject matter, and the rejection is hereby withdrawn.

b. Applicant's amendments overcome the rejection of claims 1-6, 8-13, and 15-17 under 35 U.S.C. 112, second paragraph for being indefinite, and the rejection is hereby withdrawn.

c. Applicant's amendments overcome the objections of claims 7-12, 14, 16, and 18-20 and the objections are hereby withdrawn.

3. Applicant argues that the "Claims have been amended merely to address informal issues and to enhance clarity. It is intended that the scope of the claims remain substantially the same. Upon careful review, one would conclude that the amendments made to the claims do not add any new matter to the application and they are not

narrowing, and are not made for a reason relating to patentability. Accordingly, it is submitted that these amendments do not give rise to estoppel and, in future analysis, claims 1-20 are entitled to their full range of equivalents"

4. Examiner respectfully disagrees. Applicant's amendment include an amendment to the claim language of the independent claims 1, 13 and 17 to now recite "and" language instead of "and/or" thereby narrowing the scope of these independent claims, as well as dependent claims 2-6, and 21. Likewise, applicant's amendments to the other claims were also necessitated by the grounds of rejection under 35 U.S.C. 101 for non-statutory subject matter, and under 35 U.S.C. 112 for indefiniteness, thereby narrowing the scope of claims to be within patentable subject matter that is definite in order to further prosecution.

5. Applicants' arguments filed on November 18, 2009 have been fully considered but they are not persuasive.

The Examiner has thoroughly reviewed Applicants' arguments but firmly believes that the cited reference to reasonably and properly meet the claimed limitation.

6. With respect to claims 1-4, 6, 13, and 17-20, applicant argues that Noridomi fails to teach that "*adaptive pixels are pixels that have a property of being difficult to visually recognize a variation in a pixel value from each of the plurality of image regions*" and

that the "*digital watermark embedding unit 105 does not produce a variation between pixel values of adaptive pixels in one of the plurality of image regions and those of the adaptive pixels in an adjacent one of the plurality of image regions, and does not varies the pixel values of the adaptive pixels of the plurality of image regions in a time direction, according to a value of an embedded bit set of an electronic watermark".*

7. Examiner respectfully disagrees. Applicants are reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claims. So the Examiner considers "characteristic amount" to be Applicants' "adaptive pixels" within the broad meaning of the term. In particular, examiner points to Figures 5 and 6 in regards to Noridomi's third embodiment, which contains the system and method for digital watermark embedment. Noridomi teaches "calculating and retaining a characteristic amount" for regions as well as for each frame **(Noridomi [0105], [0109]-[0110], [0112], Figures 5 element 501-502, Figure 6 elements 602-604, and 607),** wherein a "characteristic amount" is " a value calculated on the basis of pixel values in an image at a certain area thereof" and "shows characteristics of the image at the certain area thereof" **(Noridomi: [0051])** and calculates an "embedment intensity" which is an "index to show the intensity of digital watermarks embedded into the image at a certain area thereof" **(Noridomi: [0053])**. Using this embodiment, Noridomi teaches "adaptive pixels" through the calculation of characteristic amounts and embedment intensities for each region thereby eliminating "deviation in amount of digital watermark embedment-caused variation in pixel values within the image" **(Noridomi: [0114])**. The

Examiner is not limited to Applicants' definition which is not specifically set forth in the claims. In re Tanaka et al., 193 USPQ 139, (CCPA) 1977.

8. Applicant further argues that Noridomi is “silent on a boundary between two image regions, let alone ***varying adaptive pixels at a boundary between the two image regions***”.

9. Examiner respectfully disagrees. Noridomi teaches ***varying adaptive pixels at a boundary between image regions*** by firstly teaching adaptive pixels at a boundary through “calculating and retaining a characteristic amount for each image regions” **(Noridomi [0105], [0109]-[0110], [0112], Figures 5 element 501-502, Figure 6 elements 602-604)**, wherein a “characteristic amount” is “a value calculated on the basis of pixel values in an image at a certain area thereof” and “shows characteristics of the image at the certain area thereof” **(Noridomi: [0051])**. “The characteristic amount calculating unit 501 calculates a characteristic amount for each of the local regions divided by an area-dividing unit 504”, and “the characteristic amount-retaining unit 502 retains a characteristic amount for each of the local regions” **(Noridomi: [0105], Figure 5)**. It is inherent that in order to produce local regions, the area-dividing unit would create boundaries, and the “characteristic amount” is based on the pixel values within these regions, including the pixels located at those boundaries.

10. Noridomi further teaches “making the variation in the pixel values of said **adaptive pixels *vary step by step at a boundary between the two of said plurality of image regions***” by teaching that the area-dividing unit divides the image into a

plurality of local regions **(Noridomi: [0101]-[0105], [0118]-[0120], Figures 5-6)**, each of which calculates the adaptive pixels or characteristic amounts for that particular region and determines an "embedment intensity" or an "index to show the intensity of digital watermarks embedded into the image" **(Noridomi: [0051-[0053])** at a particular local region. The adaptive pixels "vary step by step" based on the results of the difference-calculating unit and its comparison to a threshold, which "changes the embedment parameter" **(Noridomi: [0123]-[0136], Figures 7-8)**.

11. Applicant argues regarding claims 13 and 17 that "Noridomi does not teach: 'an embedding processing unit for varying the pixel values of said electronic image on the basis of said electronic watermark information, and for generating an electronic-watermark-embedded image by making the variation in the pixel values of said adaptive pixels vary step by step at a boundary between the two of said plurality of image regions and in the time direction so that the variation makes a slow transition'.

12. Examiner respectfully disagrees. Noridomi teaches "*an embedding processing unit for varying pixel values of said electronic images on the basis of said electronic watermark information and for generating an electronic-watermark embedded image*" **(Noridomi: [0051]-[0053], [0101]-[0105], [0118]-[0136], Figures 5-8)** "*by making the variation in the pixel values of said adaptive pixels vary step by step at a boundary between the two of said plurality of image regions*" **(Noridomi: [0051]-[0053], [0101]-[0105], [0118]-[0136], Figures 5-8; Noridomi teaches that the area-dividing unit divides the image into a plurality of local regions each of which calculates the**

adaptive pixels or characteristic amounts for that particular region and determines an "embedment intensity" or an "index to show the intensity of digital watermarks embedded into the image" at a particular local region, which "vary step by step" based on the results of the difference-calculating unit and its comparison to a threshold, which "changes the embedment parameter") *"and in the time direction so that the variation makes a slow transition*" **(Noridomi: [0108]-[0112], [0117], [0124]-[0125], [0133]-[0140], Figures 5-8; multiple frames for an input video signal are collected, and each frame is divided into a plurality of local regions, wherein a characteristic amount and embedment parameter is determined for each region and for each frame in order to ensure that the variation makes a slow transition to suppress or inhibit degradation)**.

13. Applicant argues regarding claims 2-4 and 6 that Noridomi is "silent on any 'phase polarity', let alone 'the pixel values of said adaptive pixels in said one of the plurality of image regions have a phase polarity different from those of said adaptive pixels in the adjacent one of said plurality of image regions'".

14. Examiner respectfully disagrees. Applicants are reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claims. So the Examiner considers "varying the characteristic amount for each region" to be Applicants' "phase polarity'" within the broad meaning of the term. Thus, Noridomi does teach: "the embedded bit set is so expressed as to vary the variation between the two image regions ~~and/or~~ and the variation in those of said adaptive pixels in the time direction so that the pixel values of said adaptive pixels in the one of said plurality of

image regions have a phase polarity different from those of said adaptive pixels in the adjacent one of said plurality of image regions" **(Noridomi [0109]-[01111], Figure 6 elements 602-608, [0133]-[0136], Figure 8 elements 801-805; embedded bit set is expressed as to vary the variation between the two image regions [image is divided into four regions, each of which has a plurality of sub-regions in it and the characteristic amount is representative of the sum of the luminance values in that region of sub-regions] and variation in the time direction [target image for watermark and entered video signal] have a phase polarity different from the adaptive pixels in the adjacent one of said plurality of image regions [each region is subject to having a different characteristic amount because it is represented by the sum of the local luminance values].**

15. Applicant argues with regards to claim 5, "is distinguished from the applied prior art references at least by virtue of its dependency on claim 1 and further in view of novel features recited therein".

16. Examiner respectfully disagrees. Claim 1 is anticipated by Noridomi, and claim 5 is further taught by the combination of Noridomi in view of admitted prior art as presented below.

17. Regarding claims 7-12, 14-16, and 18-20, applicant argues that neither Noridomi nor Oostveen “teach or suggest a step or structure for detecting a correlation value as recited in claims 7, 14, and 18".

18. Examiner respectfully disagrees. Examiner will address claim 7 as being representative of the recited claims. Noridomi teaches an embedding process in accordance with the steps for claim 7 that relies on “a pattern of the pixel value variation in the time direction which is produced between the pixel values in the one of said plurality of image regions and those in the adjacent one of said plurality of image regions, which is caused by the electronic watermark to be embedded in the electronic image” **(Noridomi [0110], [0119], [0134]-[0135], [0147]; Noridomi teaches encoding by using the average of pixel values of two image data located in a vicinity of noted image data in the time direction [an average of luminance components for a local region or frame] and calculating a difference)**. Oostveen teaches a watermark decoding operation by calculating a gap value [payload] and using an inverse signature-dependent function to decode the message **(Oostveen, page 1 lines 11-17, page 3 lines 1-7, page 5 lines 1-16, Figures 2 and 3)**. With respect to structure, and steps for combination, examiner points to Figures 2 and 3, which document the steps within the process for watermark detection and decoding. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Noridomi with the teachings of Oostveen because it is desirable to have a decoding operation for a watermarking encoding operation. One of ordinary skill in the art, at the time of the invention, would have been motivated to combine the teachings of Noridomi with the

teachings of Oostveen in order to develop a watermark dependent upon “a set of robust features from the content of the host signal” in order to avoid attacks **(Oostveen, page 2 lines 1-6)**. The combination teaches providing for a unique set of features for the video signal that would present an improvement in the detection of signal to noise ratio **(Oostveen, page 2 lines 6-19)**. Applicant is further directed to the rejection of claims 7-12, 14-16, and 18-20 as presented below.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6, 13 and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Noridomi et al. (US PGPub US 2003/0210784 A1), hereby referred to as “Noridomi”.

Consider Claim 1:

Noridomi teaches

- a; “An electronic watermark embedding method comprising” **(Noridomi [0101]-[0103], [0107], Figures 5 and 6)**:

- b; “a dividing processing step of dividing an electronic image into which an electronic watermark is to be embedded into a plurality of image regions spatially” **(Noridomi [0104], [0108], Figures 5 element 504, Figure 6 element 601)**;

- c; “an adaptive extraction step of extracting, as adaptive pixels, pixels each having a property of being difficult to visually recognize a variation in a pixel value from each of said plurality of image regions” **(Noridomi [0051]-[0053], [0105], [0109]-[0110], [0112]-[0114], Figures 5 element 501-502, Figure 6 elements 602-607)**;

- d; “and an embedding step of producing a variation between the pixel values of said adaptive pixels in one of said plurality of image regions and those of said adaptive pixels in an adjacent one of said plurality of image regions” **(Noridomi [0106], [0111]-[0113], Figures 5 element 503 and 505, Figure 6 element 606-608)**,

- e; “and varying the pixel values of said adaptive pixels of said plurality of image regions in a time direction, according to a value of an embedded bit set of an electronic watermark” **(Noridomi [0123]-[0126], Figures 7 and 8)**,

- f; “and of generating an electronic -watermark-embedded image by making the variation in the pixel values of said adaptive pixels vary step by step at a boundary between the two of said plurality of image regions ~~and/or~~” **(Noridomi: [0051]-[0053], [0101]-[0105], [0118]-[0136], Figures**

5-8; the area-dividing unit divides an image into regions having boundaries, and when a region is embedded, every pixel including the pixels at the boundary in the local region are modified; the embedding is done pixel by pixel (step by step))

-g; *"and in the time direction so that the variation makes a slow transition"* **(Noridomi: [0108]-[0112], [0117], [0124]-[0125], [0133]-[0140], Figures 5-8; multiple frames for an input video signal are collected, and each frame is divided into a plurality of local regions, wherein a characteristic amount and embedment parameter is determined for each region and for each frame in order to ensure that the variation makes a slow transition to suppress or inhibit degradation)**.

Consider Claim 2:

Noridomi teaches "The electronic watermark embedding method according to claim 1, ~~characterized in that~~ wherein in the embedding step, the embedded bit set is so expressed as to vary the variation between the two image regions ~~and/or~~ and the variation in those of said adaptive pixels in the time direction so that the pixel values of said adaptive pixels in the one of said plurality of image regions have a phase polarity different from those of said adaptive pixels in the adjacent one of said plurality of image regions" **(Noridomi [0109]-[01111], Figure 6 elements 602-608, [0133]-[0136], Figure 8 elements 801-805;**

embedded bit set is expressed as to vary the variation between the two image regions [image is divided into four regions, each of which has a plurality of sub-regions in it and the characteristic amount is representative of the sum of the luminance values in that region of sub-regions] and variation in the time direction [target image for watermark and entered video signal] have a phase polarity different from the adaptive pixels in the adjacent one of said plurality of image regions [each region is subject to having a different characteristic amount because it is represented by the sum of the local luminance values]).

Consider Claim 3:

Noridomi teaches "The electronic watermark embedding method according to claim 1, ~~characterized in that~~ wherein in the adaptive extraction step, pixels each having a brightness level which is difficult to recognize visually even if a brightness variation associated with the embedding of the electronic watermark is added thereto is extracted as the adaptive pixels" **(Noridomi [0109]-[0110], [0118]-[0120], Figures 5 and 6)**.

Consider Claim 4:

Noridomi teaches "The electronic watermark embedding method according to claim 1, ~~characterized in that~~ wherein in the adaptive extraction step, pixels each having a large pixel value variation in the time direction are extracted, as the

adaptive pixels, on the basis of a pixel value difference in the time direction of the electronic image into which the electronic watermark is to be embedded" **(Noridomi [0123]-[0126], [0135]-[0140], Figures 7 and 8)**.

Consider Claim 6:

Noridomi teaches "The electronic watermark embedding method according to claim 1, ~~characterized in that~~ wherein in the embedding step, the embedding processing is carried out in synchronization with a scene change which occurs in the electronic image into which the electronic watermark is to be embedded" **(Noridomi [0136]-[0140], Figure 7 element 706, Figure 8 elements 805-806; overlaid frame number which represents the number of frames which have the same information successively embedded is used as the embedment parameter and represents scene change).**

Consider Claim 13:

Noridomi teaches

- a; "An electronic watermark embedding apparatus comprising" **(Noridomi [0101]-[0103], [0107], Figures 5 and 6)**:

- b; "a dividing processing unit for dividing an electronic image into which an electronic watermark is to be embedded into a plurality of image regions spatially" **(Noridomi [0104], [0108], Figures 5 element 504, Figure 6 element 601)**;

- c; “an adaptive extraction unit for extracting, as adaptive pixels, pixels each having a property of being difficult to visually recognize a variation in a pixel value from each of said plurality of image regions” **(Noridomi [0051]-[0053], [0105], [0109]-[0110], [0112]-[0114], Figures 5 element 501-502, Figure 6 elements 602-607)**;

- d; “a watermark information generating unit for generating electronic watermark information which produces a variation between the pixel values of said adaptive pixels in one of said plurality of image regions and those of said adaptive pixels in an adjacent one of said plurality of image regions, and which varies the pixel values of said adaptive pixels of said plurality of image regions in a time direction, according to a value of an embedded bit set of an electronic watermark” **(Noridomi [0106], [0111]-[0113], Figures 5 element 503 and 505, Figure 6 element 606-608)**;

- e; “and an embedding processing unit for varying the pixel values of said electronic image on the basis of said electronic watermark information and for generating an electronic -watermark-embedded image by making the variation in the pixel values of said adaptive pixels vary step by step at a boundary between the two of said plurality of image regions ~~and/or~~ ” (**Noridomi: [0051]-[0053], [0101]-[0105], [0118]-[0136], Figures 5-8; Noridomi teaches that the area-dividing unit divides the image into a plurality of local regions each of which calculates the adaptive pixels or characteristic amounts for that particular region and determines**

an "embedment intensity" or an "index to show the intensity of digital watermarks embedded into the image" at a particular local region, which "vary step by step" based on the results of the difference-calculating unit and its comparison to a threshold, which "changes the embedment parameter")

-f; *"and in the time direction so that the variation makes a slow transition"* **(Noridomi: [0108]-[0112], [0117], [0124]-[0125], [0133]-[0140], Figures 5-8; multiple frames for an input video signal are collected, and each frame is divided into a plurality of local regions, wherein a characteristic amount and embedment parameter is determined for each region and for each frame in order to ensure that the variation makes a slow transition to suppress or inhibit degradation)**.

Consider Claim 17:

Noridomi teaches

- a; "<u>A computer readable medium having stored thereon computer executable program, the computer program when executed</u> which causes a computer to function as an electronic watermark embedding apparatus comprising" **(Noridomi [0150], [0101]-[0103], [0107], Figures 5 and 6)**:

- b; "a dividing processing unit for dividing an electronic image into which an electronic watermark is to be embedded into a plurality of image

regions spatially" **(Noridomi [0104], [0108], Figures 5 element 504, Figure 6 element 601)**;

- c; "an adaptive extraction unit for extracting, as adaptive pixels, pixels each having a property of being difficult to visually recognize a variation in a pixel value from each of said plurality of image regions" **(Noridomi [0051]-[0053], [0105], [0109]-[0110], [0112]-[0114], Figures 5 element 501-502, Figure 6 elements 602-607)**;

- d; "a watermark information generating unit for generating electronic watermark information which produces a variation between the pixel values of said adaptive pixels in one of said plurality of image regions and those of said adaptive pixels in an adjacent one of said plurality of image regions" **(Noridomi [0106], [0111]-[0113], Figures 5 element 503 and 505, Figure 6 element 606-608)**,

- e; "and which varies the pixel values of said adaptive pixels of said plurality of image regions in a time direction, according to a value of an embedded bit set of an electronic watermark" **(Noridomi [0123]-[0126], Figures 7 and 8)**,

- f; "and an embedding processing unit for varying the pixel values of said electronic image on the basis of said electronic watermark information, and for generating an electronic -watermark-embedded image by making the variation in the pixel values of said adaptive pixels vary step by step at a boundary between the two of said plurality of image regions ~~and/or~~"

(Noridomi: [0051]-[0053], [0101]-[0105], [0118]-[0136], Figures 5-8; the area-dividing unit divides an image into regions having boundaries, and when a region is embedded, every pixel including the pixels at the boundary in the local region are modified; the embedding is done pixel by pixel (step by step))

-g; *“and in the time direction so that the variation makes a slow transition”* **(Noridomi: [0108]-[0112], [0117], [0124]-[0125], [0133]-[0140], Figures 5-8; multiple frames for an input video signal are collected, and each frame is divided into a plurality of local regions, wherein a characteristic amount and embedment parameter is determined for each region and for each frame in order to ensure that the variation makes a slow transition to suppress or inhibit degradation)**.

Consider Claim 21: (New)

Noridomi teaches “The electronic watermark embedding method according to Claim 1, wherein in the embedding step, the embedded bit set is so expressed as to vary the variation between the two image regions in the time direction so that the pixel values of said adaptive pixels in the one of said plurality of image regions have a phase polarity different from those of said adaptive pixels in the adjacent one of said plurality of image regions” **(Noridomi [0109]-[01111], Figure 6 elements 602-608, [0133]-[0136], Figure 8 elements 801-805; embedded bit set is expressed as to vary the variation between the two**

image regions [image is divided into four regions, each of which has a plurality of sub-regions in it and the characteristic amount is representative of the sum of the luminance values in that region of sub-regions] and variation in the time direction [target image for watermark and entered video signal] have a phase polarity different from the adaptive pixels in the adjacent one of said plurality of image regions [each region is subject to having a different characteristic amount because it is represented by the sum of the local luminance values]).

Consider Claim 22: (New)

Noridomi teaches "The electronic watermark embedding method according to Claim 1, wherein in the embedding step, the embedded bit set is so expressed as to vary the variation in those of said adaptive pixels in the time direction so that the pixel values of said adaptive pixels in the one of said plurality of image regions have a phase polarity different from those of said adaptive pixels in the adjacent one of said plurality of image regions" **(Noridomi [0109]-[01111], Figure 6 elements 602-608, [0133]-[0136], Figure 8 elements 801-805; embedded bit set is expressed as to vary the variation between the adaptive pixels within the image regions [image is divided into four regions, each of which has a plurality of sub-regions in it and the characteristic amount is representative of the adaptive pixels in that regions and the sum of the luminance values in that region of sub-regions]**

and variation in the time direction [target image for watermark and entered video signal] have a phase polarity different from the adaptive pixels in the adjacent one of said plurality of image regions [each region is subject to having a different characteristic amount because it is represented by the sum of the local luminance values]).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noridomi et al. (US PGPub US 2003/0210784 A1), hereby referred to as "Noridomi", in view of admitted prior art.

Consider Claim 5:

Noridomi teaches:

-a; "The electronic watermark embedding method according to claim 1, ~~characterized in that~~ wherein in the adaptive extraction step, the adaptive

pixels are extracted from a portion of the electronic image into which the electronic watermark is to be embedded" **(Noridomi [0118]-[0119]; Noridomi teaches calculating the characteristic amount by dividing the image into regions and using a sum of the local luminance values, or alternatively, edge-based adaptive pixel selection [differential absolute values of horizontally and vertically neighboring pixels])**.

Noridomi does not teach in his embodiment:

-b; "adaptive pixels are extracted from an edge portion of the electronic image into which the electronic watermark is to be embedded".

Noridomi, however, does teach as admitted prior art:

-b; "adaptive pixels are extracted from an edge portion of the electronic image into which the electronic watermark is to be embedded" **(Noridomi [0018]-[0019], [0118]-[0119]; Noridomi teaches that the prior art would use edge-based information to determine a single characteristic amount to embed a digital watermark)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Noridomi with the teachings of the admitted prior art because it is desirable to have a watermarking encoding operation that accounts for multiple characteristic features, including edge-based features. One of ordinary skill in the art, at the time of the invention, would have been motivated to combine the teachings of Noridomi with the teachings of the admitted prior art

in order to develop a watermark that is "difficult to analyze, capable of suppressing degradation in image quality" **(Noridomi, [0017])**, and which can suppress a delay in the output of an encoded image, "eliminates deviation in the amount of digital watermark embedment-caused variations in pixel value within the image, and provides increased digital watermark robustness" **(Noridomi, [0035])**.

5. Claims 7-12, 14-16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noridomi et al. (US PGPub US 2003/0210784 A1), hereby referred to as "Noridomi", in view of Oostveen et al. (WIPO Publication WO 03/055222 A2), hereby referred to as "Oostveen".

Consider Claim 7

Noridomi teaches "an electronic watermark embedding method comprising" **(Noridomi [0101]-[0103], [0107], Figures 5 and 6)** wherein the:

- a; "electronic watermark is embedded by using a method of dividing said electronic image into which the electronic watermark is to be embedded into a plurality of image regions spatially" **(Noridomi [0104], [0108], Figures 5 element 504, Figure 6 element 601)** and,

- b; "producing a variation between pixel values in one of said plurality of image regions and those in an adjacent one of said plurality of image regions, and varying the pixel values of said adaptive pixels of said plurality of image regions"

(Noridomi [0106], [0111]-[0113], Figures 5 element 503 and 505, Figure 6 element 606-608), "in a time direction according to a value of the embedded bit set" **(Noridomi [0123]-[0126], Figures 7 and 8)**.

However, Noridomi does not teach

- a; "An electronic watermark detecting method of detecting an embedded bit set of an electronic watermark to be detected from an electronic image into which the electronic watermark is embedded",

- c; "~~characterized in that~~ wherein said electronic watermark detecting method comprises: a Gap detection step of detecting, as a Gap value, from which the electronic watermark is to be detected";

-d; "a correlation detection step of detecting a correlation value showing a correlation between a pattern of the pixel value variation in the time direction which is produced between the pixel values in the one of said plurality of image regions and those in the adjacent one of said plurality of image regions, which is caused by the electronic watermark to be embedded in said electronic image from which the electronic watermark is to be detected, and a pattern of the pixel value variation in the time direction <u>of the one of said plurality of image regions</u> of said electronic image from which the electronic watermark is to be detected";

-e; "and an embedded bit judgment step of judging said embedded bit set from results of the detection of said Gap value and the detection of said correlation value for each of said plurality of image regions, and judging results of the judgment complementarily so as to determine the embedded bit set finally".

Oostveen teaches:

- a; “An electronic watermark detecting method of detecting an embedded bit set of an electronic watermark to be detected from an electronic image into which the electronic watermark is embedded” **(Oostveen, page 3 lines 1-3, page 5 lines 1-8, Figure 2 and 3; embedded bit set [robust signatures])**,

- c; “~~characterized in that~~ wherein said electronic watermark detecting method comprises: a Gap detection step of detecting, as a Gap value, a pixel value difference corresponding to a pixel value variation in the time direction which is caused by the embedding of the electronic watermark for each of said plurality of image regions of said electronic image from which the electronic watermark is to be detected” **(Oostveen, page 1 lines 11-17, page 3 lines 3-4, page 5 lines 4-10, Figure 2 and 3; gap value [payload])**;

-d; “a correlation detection step of detecting a correlation value showing a correlation between a pattern of the pixel value variation in the time direction which is produced between the pixel values in the one of said plurality of image regions and those in the adjacent one of said plurality of image regions, which is caused by the electronic watermark to be embedded in said electronic image from which the electronic watermark is to be detected, and a pattern of the pixel value variation in the time direction <u>of the one of said plurality of image regions</u> of said electronic image from which the electronic watermark is to be detected” **(Oostveen, page 3 lines 5-7, page 5 lines 8-16, Figure 2 and 3; correlation between payload and signature value)**;

-e; “and an embedded bit judgment step of judging said embedded bit set from results of the detection of said Gap value and the detection of said correlation value for each of said plurality of image regions, and judging results of the judgment complementarily so as to determine the embedded bit set finally” **(Oostveen, page 3 lines 8-10, page 5, lines 15-26, Figure 2 and 3; inverse functions are used in the decoding means to decode the embedded watermark)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Noridomi with the teachings of Oostveen because it is desirable to have a decoding operation for a watermarking encoding operation. One of ordinary skill in the art, at the time of the invention, would have been motivated to combine the teachings of Noridomi with the teachings of Oostveen in order to develop a watermark dependent upon “a set of robust features from the content of the host signal” in order to avoid attacks **(Oostveen, page 2 lines 1-6)**. The combination teaches providing for a unique set of features for the video signal that would present an improvement in the detection of signal to noise ratio **(Oostveen, page 2 lines 6-19)**.

Consider Claim 8:

The combination of Noridomi and Oostveen teaches “the electronic watermark ~~embedding~~ detecting method according to claim 7, ~~characterized in that~~ wherein in the Gap detection step, a difference between averages of pixel values of two

image data located in a vicinity of noted image data in the time direction is calculated as the Gap value, the two image data being included in plural image data in the time direction which constitute the electronic image from which the electronic watermark is to be detected" **(Oostveen, page 1 lines 11-17, page 5 lines 1-16; Noridomi [0110], [0119], [0134]-[0135], [0147]; Oostveen teaches calculating a gap value [payload] and using an inverse signature-dependent function to decode the message, while Noridomi teaches encoding by using the average of pixel values of two image data located in a vicinity of noted image data in the time direction [an average of luminance components for a local region or frame] and calculating a difference)**.

Consider Claim 9:

The combination of Noridomi and Oostveen teaches "the electronic watermark ~~embedding~~ detecting method according to claim 7, ~~characterized in that~~ wherein in the correlation detection step, averages of pixel values of image data located in a vicinity of noted image data in the time direction are sequentially calculated as reference images, the image data being included in plural image data in the time direction which constitute the electronic image from which the electronic watermark is to be detected" **(Noridomi [0128]-[0129], [0134]-[0136], [0147]; Noridomi teaches that the embedding method uses a correlation detection step between two images in a time direction [two selected image in a video,**

and determines the embedment parameter based on the difference in the sum of the luminance values for the two images] and teaches that the average of pixel values [average of luminance components] can be used for embedding as well), "and a correlation value showing a correlation between a pattern of variations in the pixel values of these reference image and a pattern of variations in pixel values of the electronic watermark to be embedded into the electronic image from which the electronic watermark is to be detected is calculated" **(Oostveen, page 1 lines 11-17, page 5 lines 1-16; Noridomi [0128]-[0135]; Oostveen teaches correlating the gap value [payload] and the robust signatures for decoding the message using an inverse function, while Noridomi teaches correlation by calculating the difference in the pattern of variation in the pixel values of the two images [characteristic amount]).**

Consider Claim 10:

The combination of Noridomi and Oostveen teaches "the electronic watermark ~~embedding~~ detecting method according to claim 7, ~~characterized in that~~ wherein in each of the Gap detection step and the correlation detection step, a clip process of restricting the detected value so that it falls within a range defined by upper and lower limits is carried out" **(Noridomi [0135]-[0140], Figure 7 element 706, Figure 8 elements 805-806; Noridomi teaches a clip process of restricting the detected value [embedment parameter changing unit] which**

changes the detected value so it falls within a range based on its comparison to that of a threshold value).

Consider Claim 11:

The combination of Noridomi and Oostveen teaches "the electronic watermark ~~embedding~~ detecting method according to claim 7, ~~characterized in that~~ wherein in each of the Gap detection step and the correlation detection step, the detection process is carried out in synchronization with a scene change which occurs in the electronic image from which the electronic watermark is to be detected" **(Noridomi [0136]-[0140], Figure 7 element 706, Figure 8 elements 805-806; overlaid frame number which represents the number of frames which have the same information successively embedded is used as the embedment parameter and represents scene change).**

Consider Claim 12:

The combination of Noridomi and Oostveen teaches "the electronic watermark ~~embedding~~ detecting method according to claim 7, ~~characterized in that~~ wherein in each of the Gap detection step and the correlation detection step, any image data which is included in the plural image data which constitute the electronic image from which the electronic watermark is to be detected and which has disorder which originates from the scene change is not used for the detection process **(Noridomi [0136]-[0140], Figure 7 element 706, Figure 8 elements**

805-806; overlaid frame number, which represents the plural image data [number of frames which have the same information successively embedded], is used as the embedment parameter and represents scene change; the difference value is compared with a threshold, and the overlaid frame number is increased when the difference is equal to or less than the threshold to prevent image quality degradation, if it is greater, the embedment parameter is reset to the original value).

Consider Claim 14:

Noridomi teaches “an electronic watermark embedding apparatus comprising” **(Noridomi [0101]-[0103], [0107], Figures 5 and 6)** wherein the:

- a; “electronic watermark is embedded by using a method of dividing said electronic image into which the electronic watermark is to be embedded into a plurality of image regions spatially” **(Noridomi [0104], [0108], Figures 5 element 504, Figure 6 element 601)** and,

- b; “producing a variation between pixel values in one of said plurality of image regions and those in an adjacent one of said plurality of image regions, and varying the pixel values of said adaptive pixels of said plurality of image regions” **(Noridomi [0106], [0111]-[0113], Figures 5 element 503 and 505, Figure 6 element 606-608)**, “in a time direction according to a value of the embedded bit set” **(Noridomi [0123]-[0126], Figures 7 and 8)**.

However, Noridomi does not teach

- a; “An electronic watermark detecting apparatus for detecting an embedded bit set of an electronic watermark to be detected from an electronic image into which the electronic watermark is embedded”:
- c; “a Gap detecting unit for detecting, as a Gap value, a pixel value difference corresponding to a pixel value variation in the time direction which is caused by the electronic watermark embedding for each of said plurality of image regions of said electronic image from which the electronic watermark is to be detected”;
- d; “a correlation detecting unit for detecting a correlation value showing a correlation between a pattern of the pixel value variation in the time direction which is produced between the pixel values in the one of said plurality of image regions and those in the adjacent one of said plurality of image regions, which is caused by the electronic watermark to be embedded in said electronic image from which the electronic watermark is to be detected, and a pattern of the pixel value variation in the time direction of said electronic image from which the electronic watermark is to be detected”;

-e; “and an embedded bit determining unit for determining said embedded bit set from results of the detection of said Gap value and the detection of said correlation value for each of said plurality of image regions, and for judging results of the determination complementarily so as to determine the embedded bit set finally”.

Oostveen teaches:

- a; “An electronic watermark detecting apparatus of detecting an embedded bit set of an electronic watermark to be detected from an electronic image into which the electronic watermark is embedded” **(Oostveen, page 3 lines 1-3, page 5 lines 1-8, Figure 2 and 3; embedded bit set [robust signatures])**,

- c; “~~characterized in that~~ wherein said electronic watermark detecting method comprises: a Gap detection step of detecting, as a Gap value, a pixel value difference corresponding to a pixel value variation in the time direction which is caused by the embedding of the electronic watermark for each of said plurality of image regions of said electronic image from which the electronic watermark is to be detected” **(Oostveen, page 1 lines 11-17, page 3 lines 3-4, page 5 lines 4-10, Figure 2 and 3; gap value [payload])**;

-d; “a correlation detection step of detecting a correlation value showing a correlation between a pattern of the pixel value variation in the time direction which is produced between the pixel values in the one of said plurality of image regions and those in the adjacent one of said plurality of image regions, which is caused by the electronic watermark to be embedded in said electronic image from which the electronic watermark is to be detected, and a pattern of the pixel value variation in the time direction of said electronic image from which the electronic watermark is to be detected” **(Oostveen, page 3 lines 5-7, page 5 lines 8-16, Figure 2 and 3; correlation between payload and signature value)**;

-e; “and an embedded bit judgment step of judging said embedded bit set from results of the detection of said Gap value and the detection of said correlation value for each of said plurality of image regions, and judging results of the judgment complementarily so as to determine the embedded bit set finally” **(Oostveen, page 3 lines 8-10, page 5, lines 15-26, Figure 2 and 3; inverse functions are used in the decoding means to decode the embedded watermark)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Noridomi with the teachings of Oostveen because it is desirable to have a decoding operation for a watermarking encoding operation. One of ordinary skill in the art, at the time of the invention, would have been motivated to combine the teachings of Noridomi with the teachings of Oostveen in order to develop a watermark dependent upon “a set of robust features from the content of the host signal” in order to avoid attacks **(Oostveen, page 2 lines 1-6)**. The combination teaches providing for a unique set of features for the video signal that would present an improvement in the detection of signal to noise ratio **(Oostveen, page 2 lines 6-19)**.

Consider Claim 15:

The combination of Noridomi and Oostveen teaches “the electronic watermark ~~embedding~~ detecting apparatus according to claim 14, ~~characterized in that~~ wherein the Gap detecting unit calculates, as the Gap value, a difference

between averages of pixel values of two image data located in a vicinity of noted image data in the time direction, the two image data being included in plural image data in the time direction which constitute the electronic image from which the electronic watermark is to be detected **(Oostveen, page 1 lines 11-17, page 5 lines 1-16; Noridomi [0110], [0119], [0134]-[0135], [0147]; Oostveen teaches calculating a gap value [payload] and using an inverse signature-dependent function to decode the message, while Noridomi teaches encoding by using the average of pixel values of two image data located in a vicinity of noted image data in the time direction [an average of luminance components for a local region or frame] and calculating a difference)**.

Consider Claim 16:

The combination of Noridomi and Oostveen teaches "the electronic watermark ~~embedding~~ detecting apparatus according to claim 14, ~~characterized in that~~ wherein the correlation detecting unit sequentially calculates, as reference images, averages of pixel values of image data located in a vicinity of noted image data in the time direction, the image data being included in plural image data in the time direction which constitute the electronic image from which the electronic watermark is to be detected" **(Noridomi [0128]-[0129], [0134]-[0136], [0147]; Noridomi teaches that the embedding method uses a correlation detection step between two images in a time direction [two selected image**

in a video, and determines the embedment parameter based on the difference in the sum of the luminance values for the two images] and teaches that the average of pixel values [average of luminance components] can be used for embedding as well), "and also calculates a correlation value showing a correlation between a pattern of variations in the pixel values of these reference image and a pattern of variations in pixel values of the electronic watermark to be embedded into the electronic image from which the electronic watermark is to be detected" **(Oostveen, page 1 lines 11-17, page 5 lines 1-16; Noridomi [0128]-[0135]; Oostveen teaches correlating the gap value [payload] and the robust signatures for decoding the message using an inverse function, while Noridomi teaches correlation by calculating the difference in the pattern of variation in the pixel values of the two images [characteristic amount])**.

Consider Claim 18:

Noridomi teaches "<u>A computer readable medium having stored thereon computer executable program, the computer program when executed</u> which causes a computer to function as an electronic watermark embedding apparatus comprising" **(Noridomi [0150], [0101]-[0103], [0107], Figures 5 and 6)** wherein the:

- a; "electronic watermark is embedded by using a method of dividing said electronic image into which the electronic watermark is to be embedded into a

plurality of image regions spatially" **(Noridomi [0104], [0108], Figures 5 element 504, Figure 6 element 601)** and,

- b; "producing a variation between pixel values in one of said plurality of image regions and those in an adjacent one of said plurality of image regions, and varying the pixel values of said adaptive pixels of said plurality of image regions" **(Noridomi [0106], [0111]-[0113], Figures 5 element 503 and 505, Figure 6 element 606-608)**, "in a time direction according to a value of the embedded bit set" **(Noridomi [0123]-[0126], Figures 7 and 8)**.

However, Noridomi does not teach

- a; "A program which causes a computer to function as an electronic watermark detecting apparatus for detecting an embedded bit set of an electronic watermark to be detected from an electronic image into which the electronic watermark is embedded":

- c; "wherein said program causes said computer to function as a Gap detecting unit for detecting, as a Gap value, a pixel value difference corresponding to a pixel value variation in the time direction which is caused by the electronic watermark embedding for each of said plurality of image regions of said electronic image from which the electronic watermark is to be detected";

- d; "a correlation detecting unit for detecting a correlation value showing a correlation between a pattern of the pixel value variation in the time direction which is produced between the pixel values in the one of said plurality of image regions and those in the adjacent one of said plurality of image regions, which is

caused by the electronic watermark to be embedded in said electronic image from which the electronic watermark is to be detected, and a pattern of the pixel value variation in the time direction of said electronic image from which the electronic watermark is to be detected";

-e; "and an embedded bit determining unit for determining said embedded bit set from results of the detection of said Gap value and the detection of said correlation value for each of said plurality of image regions, and for judging results of the determination complementarily so as to determine the embedded bit set finally".

Oostveen teaches:

- a; "A program which causes a computer to function as an electronic watermark detecting apparatus of detecting an embedded bit set of an electronic watermark to be detected from an electronic image into which the electronic watermark is embedded" **(Oostveen, page 3 lines 1-3, page 5 lines 1-8, Figure 2 and 3; embedded bit set [robust signatures])**,

- c; "wherein said program causes said computer to function as a Gap detection step of detecting, as a Gap value, a pixel value difference corresponding to a pixel value variation in the time direction which is caused by the embedding of the electronic watermark for each of said plurality of image regions of said electronic image from which the electronic watermark is to be detected" **(Oostveen, page 1 lines 11-17, page 3 lines 3-4, page 5 lines 4-10, Figure 2 and 3; gap value [payload])**;

-d; “a correlation detection step of detecting a correlation value showing a correlation between a pattern of the pixel value variation in the time direction which is produced between the pixel values in the one of said plurality of image regions and those in the adjacent one of said plurality of image regions, which is caused by the electronic watermark to be embedded in said electronic image from which the electronic watermark is to be detected, and a pattern of the pixel value variation in the time direction of said electronic image from which the electronic watermark is to be detected” **(Oostveen, page 3 lines 5-7, page 5 lines 8-16, Figure 2 and 3; correlation between payload and signature value)**;

-e; “and an embedded bit judgment step of judging said embedded bit set from results of the detection of said Gap value and the detection of said correlation value for each of said plurality of image regions, and judging results of the judgment complementarily so as to determine the embedded bit set finally” **(Oostveen, page 3 lines 8-10, page 5, lines 15-26, Figure 2 and 3; inverse functions are used in the decoding means to decode the embedded watermark)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Noridomi with the teachings of Oostveen because it is desirable to have a decoding operation for a watermarking encoding operation. One of ordinary skill in the art, at the time of the invention, would have been motivated to combine the teachings of Noridomi with the teachings of

Oostveen in order to develop a watermark dependent upon “a set of robust features from the content of the host signal” in order to avoid attacks **(Oostveen, page 2 lines 1-6)**. The combination teaches providing for a unique set of features for the video signal that would present an improvement in the detection of signal to noise ratio **(Oostveen, page 2 lines 6-19)**.

Consider Claim 19:

The combination of Noridomi and Oostveen teaches “the program according to claim 18, characterized in that the Gap detecting unit calculates, as the Gap value, a difference between averages of pixel values of two image data located in a vicinity of noted image data in the time direction, the two image data being included in plural image data in the time direction which constitute the electronic image from which the electronic watermark is to be detected” **(Oostveen, page 1 lines 11-17, page 5 lines 1-16; Noridomi [0110], [0119], [0134]-[0135], [0147]; Oostveen teaches calculating a gap value [payload] and using an inverse signature-dependent function to decode the message, while Noridomi teaches encoding by using the average of pixel values of two image data located in a vicinity of noted image data in the time direction [an average of luminance components for a local region or frame] and calculating a difference)**.

Consider Claim 20:

The combination of Noridomi and Oostveen teaches “the program according to claim 18, characterized in that the correlation detecting unit sequentially calculates, as reference images, averages of pixel values of image data located in a vicinity of noted image data in the time direction, the image data being included in plural image data in the time direction which constitute the electronic image from which the electronic watermark is to be detected” **(Noridomi [0128]-[0129], [0134]-[0136], [0147]; Noridomi teaches that the embedding method uses a correlation detection step between two images in a time direction [two selected image in a video, and determines the embedment parameter based on the difference in the sum of the luminance values for the two images] and teaches that the average of pixel values [average of luminance components] can be used for embedding as well)**, “and also calculates a correlation value showing a correlation between a pattern of variations in the pixel values of these reference image and a pattern of variations in pixel values of the electronic watermark to be embedded into the electronic image from which the electronic watermark is to be detected” **(Oostveen, page 1 lines 11-17, page 5 lines 1-16; Noridomi [0128]-[0135]; Oostveen teaches correlating the gap value [payload] and the robust signatures for decoding the message using an inverse function, while Noridomi teaches correlation by calculating the difference in the pattern of variation in the pixel values of the two images [characteristic amount])**.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Levy, US PGPub US 2002/0076083 A2, "Time and Object-Based Masking for Video Watermarking", June 20, 2002.

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAHMINA ANSARI whose telephone number is

(571)270-3379. The examiner can normally be reached on Monday through Thursday, 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BHAVESH MEHTA can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew W Johns/
Primary Examiner, Art Unit 2624

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/TA/

February 1, 2010